

**RESTRICTED**

ORDNANCE PAMPHLET NO. 1050

*Obsolete - Superseded by O.P. 1050  
First Rev.*

# AIRCRAFT FLOATING SMOKE BOMBS



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# AIRCRAFT FLOATING SMOKE BOMBS



21 SEPTEMBER 1943

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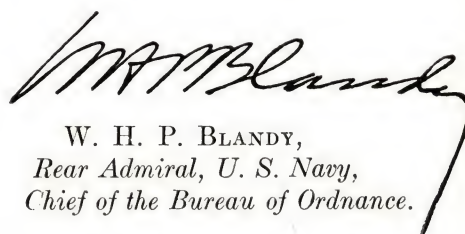
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**AIRCRAFT FLOATING SMOKE BOMBS**

Subject: Aircraft Floating Smoke Bombs.

1. The purpose of this publication is to furnish instructions for the use, stowage, and handling of the Navy's floating smoke bombs.
2. The following references contain additional information about HC Munitions in general:
  - (A) O. P. 1042—Ships' Chemical Smoke Munitions
  - (B) O. C. L. A38-43—Precautions to Take with Smoke Munitions.
3. This publication is RESTRICTED and should be handled in accordance with the provisions of Article 76, U. S. Navy Regulations 1920.

  
W. H. P. BLANDY,  
*Rear Admiral, U. S. Navy,*  
*Chief of the Bureau of Ordnance.*



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FIGURE 1. 100-lb. Aircraft smoke bomb, Mk 3.



## AIRCRAFT FLOATING SMOKE BOMBS

### SECTION 1. INTRODUCTION

#### 1. PURPOSE.

This publication is intended to serve as a guide to the installation and use of Navy floating smoke bombs.

#### 2. BOMBS AVAILABLE.

There are two floating smoke bombs now in use by the Navy. These are the 100-lb. aircraft smoke bomb Mk 3 and the 50-lb. aircraft

smoke bomb Mk 1 Mod 1. Both use HC smoke mixture.

#### 3. GENERAL INFORMATION.

The floating smoke bombs in use by the Navy are HC filled and produce a dense white persistent smoke for several minutes. The Mk 3 bomb produces smoke for approximately 7½ minutes and the Mk 1 Mod 1 bomb produces smoke for about 3 minutes.

### SECTION 2. DESCRIPTION OF BOMBS

#### 4. THE 100-LB. AIRCRAFT SMOKE BOMB MK 3.—(Fig. 1.)

The Mk 3 100-lb. smoke bomb is a floating bomb designed for dropping from aircraft for the purpose of creating a smoke screen on the surface of a body of water. It consists of an aluminum nose casting which carries a pyrotechnic charge, a hollow-wood float to provide buoyancy, and four fins to provide good flight characteristics. In addition, the nose carries a water-impact fuze and at the tail of the float is a valve cap with a valve to prevent water from leaking into the interior of the bomb and to act as a baffle giving lateral distribution to the

smoke. The bomb weighs 102 pounds, loaded and fuze, and contains 59 pounds of HC. The outside dimensions of the bomb are 48.5 inches long by 10.25 inches in diameter. The bomb has adjustable suspension bands.

#### 5. THE 50-LB. AIRCRAFT SMOKE BOMB MK 1 MOD 1.

Except in size the 50-lb. bomb closely resembles the 100-lb. bomb. It weighs only 54 pounds and contains 28 pounds HC mixture. It is 38.29 inches long by 8.85 inches in diameter. The bomb has only a single suspension band.

### SECTION 3. INSTALLATION

#### 6. THE 100-LB. BOMB MK 3.—(Fig. 6.)

(a) The 100-lb. Mk 3 bomb has two movable suspension bands. It may be suspended from any bomb rack or shackle subject to the following:

(b) For external racks requiring two-lug suspension the nose baffle and suspension lugs should be in line with a plane bisecting two adjacent tail fins (fig. 2). This is the normal position of the suspension bands.

(c) For internal racks requiring two-lug suspension the suspension lugs and nose baffle must be rotated 45° until they line up in the same plane as one fin of the tail.

(d) For single-lug suspension, the leading band should be moved back 19.93 inches behind the fuze. The other band should be rotated 90° and positioned 8 inches behind the front band. This second band then provides a metal surface for the rear steadying fork.

#### 7. THE 50-LB. BOMB MK 1 MOD 1.—(Fig. 5)

The 50-lb. Mk 1 Mod 1 bomb has one movable suspension band. It may be used on any single-lug bomb rack or shackle.

#### 8. ARMING WIRES.

No arming wires are required for either the 100-lb. bomb Mk 3 or the 50-lb. bomb Mk 1 Mod 1.



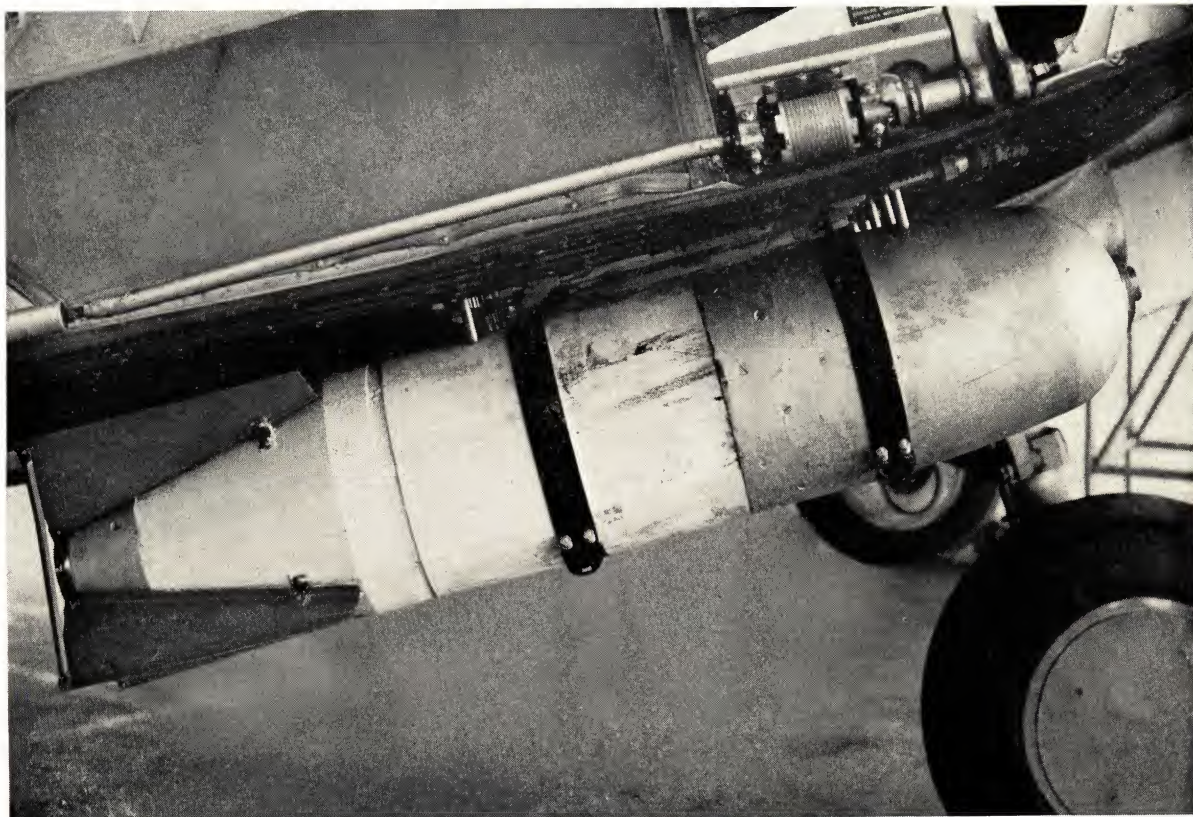


FIGURE 2. 100-lb. Mk 3 bomb. External mounting with two-lug suspension.

## SECTION 4. OPERATION

### 9. BALLISTICS.

(a) The Mk 3 smoke bomb weighs 102 pounds loaded and fuzed. It has a ballistic coefficient of 0.882 and a terminal velocity of 795 feet per second.

(b) The Mk 1 Mod 1 smoke bomb weighs 54 pounds loaded and fuzed. The ballistic coefficient is 0.627 and the terminal velocity is 694 feet per second.

### 10. IGNITION.

The Mk 3 and Mk 1 Mod 1 smoke bombs have the same ignition systems. Impact operates the firing mechanism in the nose wherein the primer ignites a length of time fuze giving an 18-second delay. During this delay, the smoke bomb returns to and becomes stable on the surface of the water. The time fuze ignites the quick match which in turn ignites the starting mixture and this initiates the action of the smoke mixture. Gas pressure formed by the burning smoke mixture breaks the vent discs

and opens the valve cap at the tail end of the wooden float. The bombs then evolve a dense white smoke for about  $7\frac{1}{2}$  minutes (100-lb. bomb) or about 3 minutes (50-lb. bomb).

### 11. USE.

(a) The Navy smoke bombs are designed for use over water. They should be dropped from altitudes over 500 feet and they should not be dropped in shallow water (40 feet or less) where the bottom is so much covered that the bombs will become stuck and fail to return to the surface.

(b) While designed for use over water, the bombs may also be effective if dropped over ordinary loam soil from altitudes under 2,000 feet. If dropped from over 2,000 feet or if dropped from any altitude onto very hard rocky ground, the bombs will usually deflagate (fig. 4). Also, bombs dropped from altitudes over 1,000 feet on to any but soft ground will be unreliable in action.





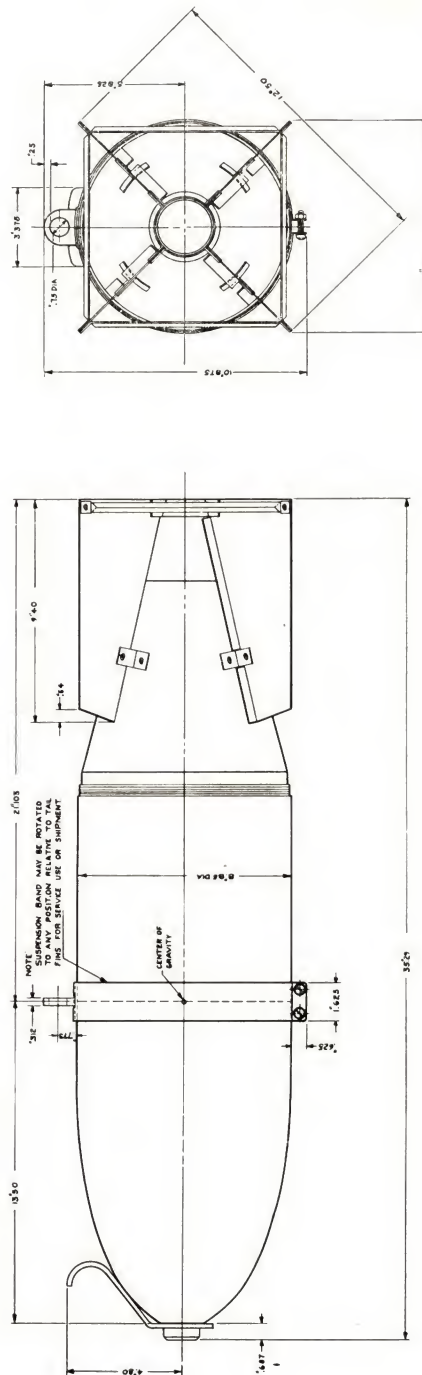
FIGURE 3. 50-lb. Mk 1 Mod 1 smoke bomb.



FIGURE 4. 100-lb. Mk 3 bomb dropped over land from too high an altitude for successful operation.



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NOTE MAXIMUM WEIGHT, READY FOR DROPPING  
(INCLUDING SUSPENSION BAND)----- 540 LBS

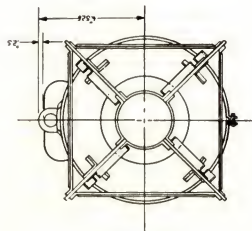
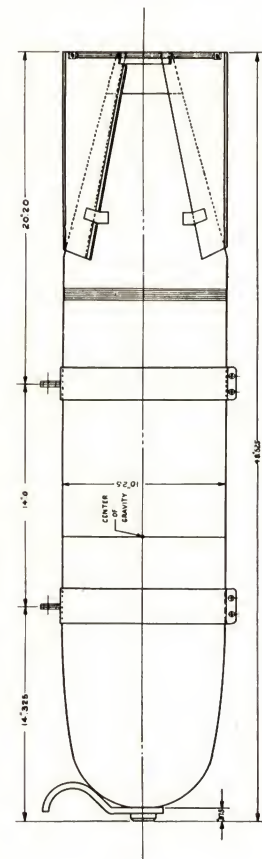
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FIGURE 5.

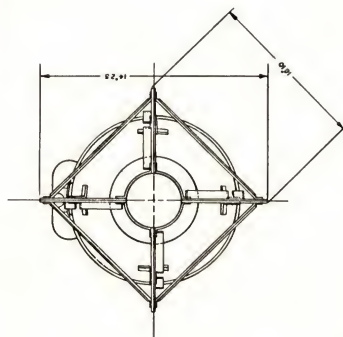
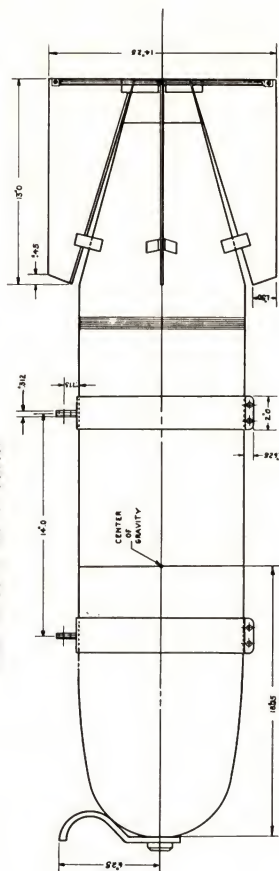
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OUTLINE OF BOMB FOR USE ON EXTERNAL RACES  
REQUIRING TWO LUGS ON BOMB FOR SUSPENSION

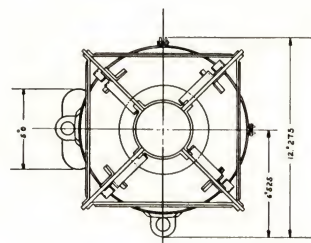
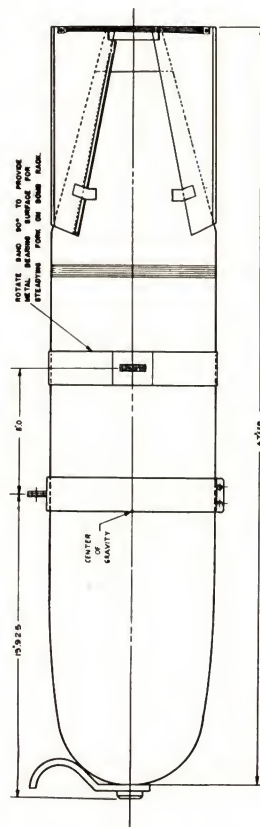


NOTE ESTIMATED TOTAL WEIGHT  
READY FOR DROPPING 102 LBS MAX

OUTLINE OF BOMBS FOR USE ON INTERVAL, RACES  
REQUIRE TWO LUGS ON BOMB FOR SUSPENSION.



ROUTINE OF BOMB FOR USE ON RACKS  
REQUIRE ONE LINE ON BOMB FOR BOMBING



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FIGURE 6.



## SECTION 5. MAINTENANCE

## 12. GENERAL.

The HC mixture is a pressed powder safe under any normal stowage or handling conditions. Stowage aboard ship should always be

topside, preferably near the fantail, where immediate jettisoning is possible, but the bombs stowed there should be protected from the weather and the spray.

## SECTION 6. SPECIAL PRECAUTIONS

## 13. GENERAL—FOR ALL HC MUNITIONS.

Special precautions to take with HC munitions are described in OCL A38-43. Briefly they are as follows:

(a) The smoke, while harmless in the concentrations found in smoke screens in the open, is toxic in more concentrated form. Therefore, gas masks should be worn by personnel operating in a screen formed in a confined space.

(b) Care should be taken in handling HC munitions to prevent rough treatment that might destroy their watertight integrity.

## 14. SPECIFIC FOR HC SMOKE BOMBS.

(a) The Mk 3 and Mk 1 mod 1 smoke bombs are safe for take-offs and landings anywhere.

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